|          | Index of Claims |          |                 |          |          |           |                    |         |          |                 |  |                             | '        | Application No.   |            |          |                   |            |              |           |             |            |                 |          | Applicant(s) |              |          |          |          |   |   |  |
|----------|-----------------|----------|-----------------|----------|----------|-----------|--------------------|---------|----------|-----------------|--|-----------------------------|----------|-------------------|------------|----------|-------------------|------------|--------------|-----------|-------------|------------|-----------------|----------|--------------|--------------|----------|----------|----------|---|---|--|
|          |                 |          |                 |          |          |           |                    |         |          |                 |  |                             |          | 10/784,274        |            |          |                   |            |              |           | TAKAHASHI E |            |                 |          |              | · AL         |          |          |          |   |   |  |
|          |                 |          |                 |          |          |           |                    |         |          |                 |  |                             |          | Examiner          |            |          |                   |            |              |           |             |            | Art Unit        |          |              |              |          |          |          | - |   |  |
|          |                 | Tanana a |                 |          |          |           |                    |         |          |                 |  |                             |          | <u> </u>          | Don P Le   |          |                   |            |              |           |             |            |                 | 2819     |              |              |          |          |          |   |   |  |
|          |                 |          |                 |          |          |           | $\neg$             |         | Г        |                 | (Th  |                             |          |                   |            | 1        | $\overline{\Box}$ |            |              |           |             |            |                 |          |              |              |          |          |          |   |   |  |
|          | √ Rejected      |          |                 |          |          |           | đ                  |         |          |                 | (Inrou   | Through numera<br>Cancelled |          |                   |            |          | N                 | Non-Elect  |              | ed        |             | A          | Appeal          |          |              |              |          |          |          |   |   |  |
|          |                 |          | = Allowed       |          |          |           | d                  |         |          | :               | Re   | Restricted                  |          |                   |            |          | 1                 | Interferen |              | се        | 0           | Objected   |                 |          |              |              |          |          |          |   |   |  |
| _        |                 | Claim    |                 |          |          |           | <u> </u>           |         |          |                 |  |                             |          |                   |            |          |                   |            |              |           |             |            | ш<br>—          |          |              |              |          |          |          | 7 |   |  |
| -        | Cla             |          | И               | - 1      | $\neg$   | 7         | ate                | Т       | 1        | П               | Cl   | aim<br>                     | $\vdash$ | $\neg$            | Τ.         | Date     | •<br>             | Т          | 1            | -         |             | laim<br>_  |                 | Т        | Т            | Date         | e<br>    | $\neg$   | Т        | - |   |  |
|          | Final           | Original | 14              |          |          | :         |                    |         |          |                 | Final  | Original                    |          |                   |            |          |                   |            |              |           | Final       | Original   |                 |          |              |              |          |          |          |   |   |  |
|          |                 | 1        | <b>√</b>        |          |          | $\exists$ |                    | $\pm$   |          |                 |  | 51                          |          | $\pm$             | -          |          |                   | -          | +            | $\dashv$  |             | 101        | H               | +        | +            | $\vdash$     | Н        |          | +        | - |   |  |
| -        |                 | 2        | $\bowtie$       |          | 4        | 4         |                    | 4       | $\perp$  | $\perp$         | <u> </u>                                       | 52                          | Ш        | 4                 | _          |          |                   | 4          | 1            | $\Box$    |             | 102        |                 | $\perp$  | $\perp$      | $oxed{\Box}$ |          |          | I        | ] |   |  |
| -        | -               | 3        | $\vdash$        | $\dashv$ | +        | $\dashv$  | $\dashv$           | -       | +        | +               |  | 53<br>54                    | ┝┿       | ╬                 | +-         |          | $\vdash$          | $\dashv$   | +            | -         |             | 103<br>104 | -               | -        | +            | +            | H        | +        | +        | 4 |   |  |
|          |                 | 5        | Н               |          | $\dashv$ | $\dashv$  | 十                  | _       | $\dashv$ | +               |  | 55                          |          |                   | +          | _        |                   | +          | +            | $\dashv$  |             | 105        | H               | -        | +            | 1            |          | +        | +        | 1 |   |  |
|          |                 | 6        |                 |          |          | $\Box$    |                    |         |          |                 |  | 56                          |          |                   |            |          |                   |            |              |           |             | 106        |                 |          |              |              |          |          |          | ] |   |  |
| -        |                 | 7<br>8   | $\vdash \vdash$ | -        | $\dashv$ | $\dashv$  |                    | 4       |          | +               |  | 57<br>58                    |          | +                 | -          | _        | Ш                 | -          | $\dashv$     | _         |             | 107        |                 | 1        |              | <u> </u>     | Ш        | _        | 4        | 1 |   |  |
| -        |                 | 9        | $\vdash$        |          | +        | $\dashv$  | $\dashv$           | +       |          | +               |  | 59                          | -        | ╁                 | +          | -        | -                 | +          | +            | -         |             | 108<br>109 | $\vdash$        |          | ╁            | +            | Н        | +        |          | 1 |   |  |
|          |                 | 10       |                 |          | 士        |           |                    |         |          | 士               |  | 60                          |          |                   |            |          |                   | +          | +            |           |             | 110        | $\Box$          |          | +            |              |          |          | +        | 1 |   |  |
|          |                 | 11       |                 |          | $\Box$   | $\bot$    | 4                  |         | $\Box$   | $\perp$         |  | 61                          |          |                   | $\perp$    |          |                   | $\Box$     | 1            |           |             | 111        |                 |          |              |              |          |          |          | ] |   |  |
| -        |                 | 12<br>13 | $\vdash$        | -        | -        | +         | -                  | +       |          | +               | <del>                                   </del> | 62<br>63                    | -        |                   | +          |          | Н                 | +          | 4            | _         |             | 112        | $\sqcup$        | +        | ╀            | _            | $\vdash$ | +        | +        | 1 |   |  |
| -        |                 | 14       |                 |          | +        | $\dashv$  |                    | +       | +        | $\dashv \dashv$ |  | 64                          | -        | +                 | +          |          |                   | +          | +            |           |             | 114        | -               |          | ╁            | ┼            | $\vdash$ | -        | ╁╌       | 1 |   |  |
|          |                 | 15       |                 |          |          |           |                    |         |          |                 |  | 65                          |          | $\top$            |            |          |                   |            | 1            | 7         |             | 115        | $\Box$          | $\top$   | $\top$       | T            | $\Box$   | $\top$   | +        | 1 |   |  |
| -        |                 | 16       | $\sqcup$        | $\dashv$ | _        | 4         | 4                  | _       | 4        | 4               |  | 66                          |          |                   |            |          |                   |            | $\perp$      |           |             | 116        |                 | 1.       |              |              |          |          |          | ] |   |  |
| H        |                 | 17<br>18 | $\vdash$        | $\dashv$ | +        | +         | +                  | -       | +        | 4-4             |  | 67<br>68                    |          | +                 | +          | Н        |                   | _          | -            |           |             | 117<br>118 | $\vdash$        | -        | +            | -            | $\vdash$ | _        | 1-       |   | , |  |
| <u> </u> |                 | 19       | $\vdash$        | $\dashv$ | $\dashv$ | $\dashv$  | $\dashv$           | $\top$  | +        | +               |  | 69                          | -+       | +                 | +          | $\vdash$ |                   | $\dashv$   | +            | $\dashv$  |             | 119        | H               | +        | +            | $\vdash$     | $\vdash$ | +        | -        |   |   |  |
|          |                 | 20       |                 |          |          |           | 土                  |         |          |                 |  | 70                          |          |                   |            |          |                   |            | _            |           |             | 120        |                 |          | 1            | $\vdash$     | Н        | $\top$   | +-       | 1 |   |  |
| -        | _               | 21       | Н               |          | 4        | 4         | 4                  | -       | _        | $\perp$         | <u> </u>                                       | 71                          |          | $\perp$           |            |          |                   | $\perp$    | 4            | _         |             | 121        |                 | $\perp$  | $\bot$       | $\Box$       |          | $\perp$  |          | ] |   |  |
|          | $\dashv$        | 22       |                 | $\dashv$ | +        | ╅         | +                  | +       | +        | +               |  | 72<br>73                    | -        | +                 | +          |          | $\vdash$          | -          | +            | $\dashv$  |             | 122<br>123 | $\vdash \vdash$ | +        |              | $\vdash$     | $\vdash$ | +        | +        |   |   |  |
|          |                 | 24       |                 | 寸        | $\dashv$ | $\forall$ | $\dashv$           | +       | 十        | +               | -  | 74                          | +        | +-                | +          | $\vdash$ | $\vdash$          | -          | +            | -         |             | 124        | $\vdash$        | +        | ╁            | ╁            | $\vdash$ |          | +        | - |   |  |
|          |                 | 25       |                 | $\Box$   |          | 1         |                    | $\perp$ |          |                 |  | 75                          |          |                   |            |          |                   |            |              | <b>]</b>  |             | 125        |                 |          |              |              |          |          |          | ] |   |  |
| -        |                 | 26<br>27 | -               |          | 4        | $\perp$   | 4                  | 4       | 4        | 44              |  | 76                          |          | _                 | $\perp$    |          |                   | 4          | _            | _         |             | 126        |                 |          |              |              | $\Box$   | $\Box$   |          | ] |   |  |
|          |                 | 28       | $\vdash$        | -+       | $\dashv$ | +         | +                  | +       | +        | +               | -  | 77<br>78                    | -        | +-                | $\vdash$   | -        | $\vdash$          | -+         | +            | -         |             | 127<br>128 | $\vdash \vdash$ | -        | +-           | Н            |          |          | +        | - |   |  |
|          | $\neg$          | 29       | $\vdash$        | $\dashv$ | $\top$   | Ť         | +                  | T       | $\top$   | +               |  | 79                          |          | +                 | +          |          | $\exists$         | +          | +            | - I I     |             | 129        |                 | $\dashv$ | +            | +            |          | +        | +        | 1 |   |  |
|          | $\Box$          | 30       |                 | $\Box$   | $\Box$   | _         |                    |         |          |                 |  | 80                          |          |                   |            |          |                   |            |              | ]         |             | 130        |                 |          |              |              |          | 丁        |          | ] |   |  |
| _        |                 | 31<br>32 | $\dashv$        | -        |          | +         | +                  | -       | +        | +               |  | 81<br>82                    |          | +                 | $\vdash$   |          |                   | -          | $\downarrow$ | -         |             | 131        |                 | _        | _            |              |          |          |          |   |   |  |
| -        |                 | 33       |                 | $\dashv$ | +        | $\dashv$  | +                  | +       | +        | +               | -  | 83                          | +        | +                 | +          | $\dashv$ | $\dashv$          | +          | ╁            | -{ }      |             | 132<br>133 | $\vdash$        | +        | -            | Н            | $\dashv$ | -        | ╄        |   |   |  |
|          |                 | 34       |                 |          | 寸        | $\top$    |                    | $\top$  | 1        | 1-1             |  | 84                          | $\top$   | +                 | $\vdash$   | $\dashv$ | 1                 | +          | $\dagger$    | <b>-</b>  |             | 134        | H               | +        | +            | +            | $\dashv$ | $\dashv$ | ╁        | • |   |  |
|          |                 | 35       |                 | _        | $\perp$  | Ţ         | $\perp$            | $\perp$ | Ţ        |                 |  | 85                          |          | $\top$            |            |          |                   |            |              | <b>]</b>  |             | 135        |                 |          |              |              |          |          |          |   |   |  |
| -        |                 | 36<br>37 | -               | -        | +        | +         | +                  | +       | +        | +               | ļ  | 86<br>87                    | +        | 4                 | +          | _        | _                 | 4          | 4            | -         |             | 136        | $\sqcup$        | _ _      | 4            | Ш            | $\Box$   | $\perp$  | $\bot$   |   |   |  |
| -        |                 | 38       |                 | $\dashv$ | +        | +         | $\dashv$           | +       | +-       | +               | -  | 88                          | +        | +                 | $\vdash$   |          | -                 | $\dashv$   | +            | -         |             | 137<br>138 | H               | +        | ╁            | +            | $\dashv$ | +        | +-       |   |   |  |
|          |                 | 39       |                 |          |          | $\perp$   | 士                  | T       |          |                 |  | 89                          | $\neg$   | +-                | $  \neg  $ |          |                   | $\dashv$   | $\dagger$    | <b>-</b>  |             | 139        | $\vdash$        | $\dashv$ | +            | $\vdash$     | $\dashv$ | 十        | ╁╌       | 1 |   |  |
|          |                 | 40       |                 | $\dashv$ | 4        | $\bot$    | $\perp$            | $\Box$  |          | $\Box$          |  | 90                          |          | $\perp$           |            |          |                   |            |              | <b>]</b>  |             | 140        |                 |          |              |              |          |          |          |   |   |  |
|          |                 | 41<br>42 | -               | $\dashv$ | +        | +         | +                  | +       | +        | +-1             | -  | 91<br>92                    | +        | +                 | $\vdash$   | _        | _                 | +          | +            | -         |             | 141        | 4               | 4        | 1            | $\sqcup$     |          |          |          | , |   |  |
| -        | _               | 43       | +               | +        | +        | +         | +                  | +       | +        | +               | -  | 93                          | +        | +-                | ╁┪         | $\dashv$ | +                 | +          | +            | ┥╏        |             | 142        | $\dashv$        | +        | ╁            | ╂┼┤          | $\dashv$ | -        | +-       | - |   |  |
|          |                 | 44       |                 |          | 土        | $\perp$   |                    | 土       | 土        | $\perp$         |  | 94                          |          | 士                 | ╁ ┤        | _†       |                   | _          | $\dagger$    | <b>- </b> |             | 144        | -               | +        | +            | $\vdash$     | $\dashv$ | _        | +        |   |   |  |
|          |                 | 45       | $\dashv$        | _[       | 1        | Ţ         | Ŧ                  | $\perp$ | $\bot$   | П               |  | 95                          |          | $oldsymbol{\Box}$ |            | $\Box$   |                   |            | $\perp$      | ] [       |             | 145        |                 |          |              |              | コ        |          |          |   |   |  |
| <br>     | $\dashv$        | 46<br>47 | $\dashv$        | +        | +        | +         | +                  | +       | +        | +               |  | 96<br>97                    | _        | +                 | -          |          | 4                 | -          | +            | -         |             | 146        |                 |          | $\bot$       | $\Box$       | $\neg$   | $\bot$   | igspace  |   |   |  |
| -        |                 | 48       | $\dashv$        | +        | +        | +         | +                  | +       | +        | $\dashv$        |  | 98                          | +        | +-                | +          | $\dashv$ | $\dashv$          | +          | +            | ┨         |             | 147        |                 | -        | +            | -            | -        |          | $\vdash$ |   |   |  |
|          |                 | 49       |                 |          | 士        |           | 土                  |         |          |                 |  | 99                          |          | ╧                 |            | ╛        | $\exists$         |            | $\dagger$    | <u> </u>  |             | 149        |                 | +        | +            | $\vdash$     | $\dashv$ | $\dashv$ | +-       |   |   |  |
|          |                 | 50       | _]              | $\perp$  | $\perp$  |           | $oldsymbol{\perp}$ | $\perp$ |          | $\prod$         |  | 100                         |          |                   |            |          |                   |            | $\perp$      | ] [       |             | 150        |                 |          | 工            |              |          |          |          |   |   |  |

Application No.

Applicant(s)